SUPPORT FOR THE AMENDMENTS

Claim1 is canceled.

Support for the amendment of Claim 2 is found in the description of Claim 13 and on page 6, lines 1-8, in the specification.

Support for the amendment of Claim 13 is found in Examples 1-5, 8 and 9 in Table 1 on page 8 of the specification.

Claims 6-11 and 14-17 are canceled.

No new matter will be added to this application by entry of this amendment.

Upon entry of this amendment, Claims 2, 4-5 and 12-13 are active.

REMARKS/ARGUMENTS

The claimed invention provides an aluminum brazing sheet especially useful for the manufacture of parts of automobile radiators, including the header and the side plate. The claimed brazing sheet consists of an aluminum core, a cladding material on one side of the core and a brazing material laminated on the opposite side. Applicants have determined that a specific combination of compositions of the respective brazing sheet components, as described on Claim 2, provides a brazing sheet having significantly improved pressure adhesion performance while having good corrosion properties. Specifically, the potential of the core material is higher than that of the cladding in order to obtain a sacrificial anode effect. Applicants respectfully note that Claim 2 is herein amended to describe a sacrificial anode effect as supported on page 6, lines 6-9, in the specification, as filed.

The rejection of Claims 1-2, 4-5, 7-12 and 17 under 35 U.S.C. 103(a) over Doyle (U.S. 3,310,389) in view of Young (U.S. 2,900,713) or Giovannucci (U.S. 3,386,221) is respectfully traversed.

Applicants respectfully note that the rejection of Claims 1, 6-11 and 17 is moot in view of the cancelation of these claims herein. The following addresses the rejection relative to the active claims.

Doyle describes an aluminum alloy sheet intended to withstand high temperatures which are used for example for the skins of aircraft intended to fly at supersonic speeds (Col. 1, lines 10-20). The aluminum sheet may be clad on one or both main faces with a layer of aluminum or an aluminum alloy (Col. 1, lines 21-25). Doyle does not disclose or suggest an aluminum sheet with a brazing material laminated on the side of the core material opposite to the cladding material, nor does this reference disclose or suggest that the potential of the core material is higher than that of the cladding in order to obtain a sacrificial anode effect.

Doyle describes the necessity that the aluminum alloy core must contain 1.3 to 1.7 weight per cent Mg and 0.12 to 0.25 weight per cent Si (Col. 3, lines 26-36).

In contrast, the content of the core material according to the claimed invention relative to Mg and Si respectively, is a maximum of 0.3 mass% and 0.3 to 0.7 mass%.

Applicants have described that in order to have a higher potential in the core material than in the cladding and retain the brazeability of the claimed invention the Mg content can be added up to 0.3 mass%. Higher values as described by Doyle would adversely affect brazing performance.

The Office has cited Giovannucci and Young to show application of braze material to aluminum aircraft materials.

Both of the secondary references describe reinforced honeycomb structures and neither secondary reference discloses or suggests that the potential of the core material is higher than that of the cladding in order to obtain a sacrificial anode effect and that the core material have a composition containing a maximum of 0.3 mass% Mg and 0.3 to 0.7 mass% Si.

Applicants respectfully note the following excerpt from the Office's own discussion of **"Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.*"**

> "The rationale to support a conclusion that the claim would have been obvious is that **all the claimed elements were known in the prior art** and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention. ""[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." **If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art,"** (Federal Register, Vol. 72, No. 195, page 57529) (Bold added) (Citations omitted)

Applicants submit that as described above, all the claimed elements are not described in the cited combination of references and according to the KSR guidelines a conclusion of obviousness cannot be supported. Accordingly, Applicants respectfully request that the rejection of Claims 1-2, 4-5, 7-12 and 17 under 35 U.S.C. 103(a) over Doyle in view of Young or Giovannucci be withdrawn.

The rejection of Claims 1-17 under 35 U.S.C. 103(a) over Syslak et al. (WO 02/090031) is respectfully traversed.

Syslak describes a brazing sheet for a heat exchanger, with a core material of an aluminum alloy and a brazing aluminum alloy metal clad on at least one side of the core (Claim 1). The core material contains up to 0.6 weight % Zn, the inner clad material contains 1.0 to 2.0 weight % Zn and the outer braze clad contains 0.1 to 2.0 weight % Zn. Syslak describes corrosion resistance can be attributed to factors such as 1) formation of a sacrificial precipitation band due to diffusion of Si from the braze to the core during brazing (Col. 5, lines 1-9); 2) grain elongation (Col. 5, lines 11-18); 3) formation of a Cu depletion band at the surface of the brazed materials (Col. 5, lines 22-32) and 4) a concentration

gradient of Zn in the core formed during brazing when Zn migrates from the braze clad into the core (Col. 5, lines 36-46). Nowhere does Syslak disclose or suggest a brazing sheet wherein a potential of the cladding is lower than a potential of the core and a sacrificial anode effect is obtained, as described in Claim 2 herein.

In contrast, Applicants have provided the following description (page 5, line 24 to page 6, line 15):

> When an aluminum alloy having a low potential is employed as a core material, the addition of Zn to the cladding material is effective for obtaining the potential of the cladding material lower than that of the core material. The addition of Zn to the cladding material results in lowering the potential thereof, thereby effectively allowing the potential of the cladding material to be lower than that of the core material. In this case, when the added amount of Zn exceeds 6 mass%, the rolling workability is likely to be lowered, which is not preferable.
>
> In order to fully obtain the sacrificial anode effect of cladding material, the potential of the core material must be higher than that of the cladding material. Therefore, the composition of the core material is selected such that the potential thereof is higher than that of the cladding material. For example, an Al-0.5Si-0.8Cu-1.2Mn alloy (in mass%) may be employed. Since Mg contained in the core material enhances the strength of the core material, Mg may be added to the core material up to 0.3 mass% up to which the brazeability is not inhibited.

Applicants submit that nowhere does Syslak describe such a sacrificial anode effect between the water side clad and the core of the same braze sheet as according to the claimed invention. As described above Syslak recites the presence of Zn in all the layers and even describes migration of Zn into the core, thereby increasing the Zn in the core. Nowhere does this reference suggest establishing a sacrificial anode effect by controlling the relative concentration of Zn in the water side clad to the concentration in the core.

The Office has previously alleged that one of ordinary skill in the art would not expect a difference of 0.02 wt % Mg would lead to a significant difference in performance of the brazing sheet (Official Action dated January 27, 2009, page 5, lines 20-22). Applicants showed in the data provided in the Declaration of Mr. Ueda that the 0.02% difference does

result in a difference in post-brazing strength within the composition of the present invention. Now the Office has refuted this showing on the basis that too many variables were changed (Official Action Dated August 14, 2009, page 8, paragraph 15) and points to Doyle as showing 0.7 per cent Mg. However, Doyle does not describe a core composition meeting the description of the currently claimed invention.

As described in the above discussion, Applicants have described a combination of layer compositions which together provides the improved brazing performance, good corrosion resistance and reduced pressure adhesion failure obtained with the aluminum brazing sheet of the invention.

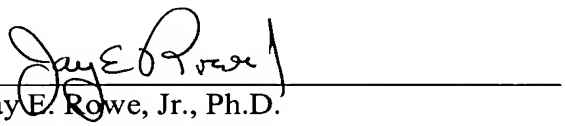
Applicants again submit that Syslak does not disclose or suggest the alloy compositions, in total combination, of Claim 2 of the present invention. Furthermore, this reference does not disclose or suggest a brazing sheet wherein the potential of the cladding is lower than the potential of the core and a sacrificial anode effect is thereby established.

Therefore, Applicants respectfully submit that in accord with the above KSR guidelines, a conclusion of obviousness cannot be supported and withdrawal of the rejection of Claims 1-17 under 35 U.S.C. 103(a) over Syslak is respectfully requested.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Jay E. Rowe, Jr., Ph.D.
Registration No. 58,948

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)